

**TITLE OF THE INVENTION**

A structural wooden joist.

**FIELD OF THE INVENTION**

- 5 The present invention pertains to a structural wooden joist used in building constructions.

**BACKGROUND OF THE INVENTION**

- 10 Wooden joists are used increasingly in a number of building applications. They comprise top and bottom elongated chords with intervening struts joined to the chords by means of scarfing. One such wooden joist may be found described in U.S. patent no. 5,867,963 issued February 9, 1999 to Hershey.
- 15 Some web structures have a triangular configuration such as the joist described in applicant's U.S. patent No. 5,664,393 issued September 9, 1997.

In U.S. patent No. 4,336,678 issued June 29, 1982, a wooden truss structure is described with a web member formed of sheet material, such as plywood.

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**OBJECTS AND STATEMENT OF THE INVENTION**

It is an object of the present invention to provide a novel wooden joist which includes a laminated panel structure formed of short laminated vertical planks

- 25 which are adhesively secured to one another by gluing thereby enabling an adjustment of the joist length at the building location by a simple sawing operation.

This type of joist is used in some cases for closing the peripheral areas of a floor

- 30 or ceiling wherein all internal joists are the open type or, in other cases, as a fire barrier.

The present invention therefore relates to a structural wooden joist which comprises:

- a) an elongated lower chord;
- b) an elongated upper chord in a spaced apart opposed relation to
- 5 the lower chord; and
- c) a laminated panel structure joining the chords and defining an uninterrupted surface from one end of the joist to an opposite end thereof and having opposite upper and lower edges joined to the lower and upper chords respectively; the laminated panel structure is formed of a series of elongated
- 10 planks adhesively secured edgewise to one another and extending vertically between the lower and upper chords.

In one form of the invention, the laminated panel structure has a width equal to the width of the lower and upper chords thereby defining a continuous

- 15 rectangular shaped cross-section throughout the length of the joist.

In another form of the invention, the laminated panel structure is formed of two laminated panels extending parallel to and abutting one another.

- 20 The boards are made of kiln dry wood, preferably one selected from the group that includes fir, spruce and pine.

Other objects and further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. It should be

- 25 understood, however, that this detailed description, while indicating preferred embodiments of the invention, is given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art.

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#### **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is an elevational view of a wooden joist made in accordance with the present invention;

Figure 2 is a cross-sectional view taken along lines 2-2 of figure 1; and

Figure 3 is a cross-sectional view of another embodiment of the present  
5 invention.

#### **DESCRIPTION OF PREFERRED EMBODIMENTS**

Referring to figure 1, there is shown a structural wooden joist, generally denoted

10 10, which comprises an elongated lower chord 12 and an elongated upper chord  
14 in spaced apart generally parallel opposed relation to the lower chord 12.

Between the upper and lower chords, is provided a laminated panel structure 16  
consisting of a series of vertically extending planks 18.

15 In a first embodiment illustrated in figure 2, the laminated panel structure consists  
of two laminated panels 16a and 16b extending parallel to and abutting one  
another. Each panel 16a, 16b consists of a series of vertically extending planks  
which are adhesively secured in edgewise fashion to one another. They are  
20 secured to one another by glue; however, they could also be secured by a V-  
shaped joint or similar joint.

The planks are joined in an endwise manner to the lower and upper chords by  
scarf joints 18a, 18b and 20a, 20b. Glue is used to secure the joints.

25 In embodiment illustrated in figure 2, the width of the chords 12 and 14 is  
substantially the same as that of the width of both panels 16a and 16b together  
thereby providing a continuous rectangular cross-section throughout the length  
of the joist.

30 In another embodiment of the invention (see figure 3), there is a single laminated  
panel 22 which is again formed of a series of adhesively secured vertical planks  
joined to a lower chord 24 and an upper chord 26 by finger joints 28 and 30.

Again, glue may be used to secure the planks together or V-shaped or similar joints.

- The wood used for all planks of the panels is kiln dry wood preferably one selected from the group consisting of fir, spruce and pine. The wood fibers extend in the longitudinal direction of the plank.

- Also, the glue used in securing the planks together as well as that used in the scarfing is one preferably having a base of resin resorcinol, such as phenol 10 resorcinol resin, or one having a base of urethane, or one approved for structural wood.

- Although the invention has been described above with respect to one specific form, it will be evident to a person skilled in the art that it may be modified and 15 refined in various ways. For example, the opposite end regions of the joist may be sawed off to form inserts in a truss such as the one described for example in the above identified U.S. patent to Hershey. It is therefore wished to have it understood that the present invention should not be limited in scope, except by the terms of the following claims.